

CLAIMS

What is claimed is:

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1        1.     A flexible welding implement, comprising:  
2              a torch head operable to couple electricity to a welding electrode disposed therein;  
3              a cooling fluid supply tube operable to convey a cooling fluid to the torch head; and  
4              a first coiled wire spring operable to flexibly couple the cooling fluid supply tube to  
5              the torch head.

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2        2.     The flexible welding implement as recited in claim 1, comprising:  
3              a cooling fluid return tube operable to convey the cooling fluid from the torch head;  
4              and  
5              a second coiled wire spring operable to flexibly couple the cooling fluid return tube  
            to the torch head.

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2        3.     The flexible welding implement as recited in claim 2, comprising:  
3              a gas supply tube operable to convey a gas to the torch head; and  
4              a third coiled wire spring operable to flexibly couple the gas supply tube to the torch  
            head.

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2        4.     The flexible welding implement as recited in claim 1, comprising a second  
3              cooling fluid supply tube secured to the torch head, wherein the cooling fluid supply tube is  
4              coupled to the second cooling fluid supply tube by the second coiled wire spring.

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2        5.     The flexible welding implement as recited in claim 4, comprising a flexible  
3              tube disposed over the first coiled wire spring to define a fluid channel for the cooling liquid  
4              to flow from the gas supply tube to the second gas supply tube axially through the center of  
            the first coiled wire spring.

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2           6.       The flexible welding implement as recited in claim 1, comprising a second  
3       cooling fluid return tube secured to the torch head, wherein the cooling fluid return tube  
4       is coupled to the second cooling fluid return tube by the second coiled wire spring.

1           7.       The flexible welding implement as recited in claim 5, comprising a second  
2       gas supply tube secured to the torch head, wherein the gas supply tube is coupled to the  
3       second gas supply tube by the third coiled wire spring.

1           8.       The flexible welding implement as recited in claim 6, comprising a second  
2       flexible tube disposed over the second coiled wire spring and a third flexible tube disposed  
3       over the third coiled wire spring.

1           9.       The flexible welding implement as recited in claim 7, comprising a handle  
2       disposed over the gas supply tube, the cooling fluid supply tube, and the cooling fluid  
3       return tube.

1           10.      A flexible welding implement, comprising:  
2               a torch coupleable to a handle, comprising:  
3                a torch head operable to receive a cooling liquid; and  
4                a spring disposed within the torch to enable the torch head to be displaced  
5                relative to the handle, wherein the torch directs the cooling liquid  
6                to flow axially through the spring to the torch head.

1           11.      The flexible welding implement as recited in claim 10, comprising a flexible  
2       tube disposed over the spring, a portion of the first tube, and a portion of the second tube to  
3       define a fluid channel for the cooling liquid to flow axially through the spring.

1           12.      The flexible welding implement as recited in claim 11, wherein the  
2       flexible tube comprises heat shrink tubing.

1           13.    The flexible welding implement as recited in claim 10, comprising a  
2    second spring disposed within the torch to enable the torch head to be displaced relative  
3    to the handle, wherein the torch is adapted to direct the cooling liquid to flow from the  
4    torch head axially through the second spring.

1           14.    The flexible welding implement as recited in claim 13, comprising a third  
2    spring disposed within the torch to enable the torch head to be displaced relative to the  
3    handle, wherein the torch is adapted to direct a gas to flow axially through the third spring  
4    to the torch head.

1           15.    The flexible welding implement as recited in claim 14, comprising a  
2    second tube coupleable to a cooling liquid return line and a third tube coupleable to a gas  
3    supply tube.

1           16.    The flexible welding implement as recited in claim 15, comprising a tube  
2    support member, wherein the first tube, the second tube, and the third tube are disposed  
3    through the tube support member.

1           17.    The flexible welding implement as recited in claim 10, comprising the  
2    handle.

1           18.    A welding implement, comprising:  
2        a torch, comprising:  
3            a torch head;  
4            a tripod support system secured to the torch head to flexibly  
5            support the torch head, the tripod comprising:  
6            a first leg comprising a first spring;  
7            a second leg comprising a second spring; and  
8            a third leg comprising a third spring.

1           19.    The welding implement as recited in claim 18, wherein at least one of the  
2    legs is adapted to direct a fluid axially through the first spring.

1           20.    The welding implement as recited in claim 19, wherein the first leg is  
2    adapted to direct a gas axially through the first spring.

1           21.    The welding implement as recited in claim 20, wherein the second leg is  
2    adapted to direct a cooling fluid to the torch head axially through the second spring, and  
3    the third leg is adapted to direct the cooling fluid from the torch head axially through the  
4    second spring.

1           22.    The welding implement as recited in claim 18, comprising a plurality of  
2    tubes and a tube support member, wherein each leg of the tripod support system  
3    comprises a tube disposed through the tube support member.

1           23.    The welding implement as recited in claim 22, wherein each of the springs  
2    comprises a coiled wire spring secured to an end of one of the plurality of tubes.

1           24.    The welding implement as recited in claim 22, comprising a handle  
2    coupleable to the torch, wherein the tripod support system enables the torch head to be  
3    flexibly positioned relative to the handle.

1           25.    The welding implement as recited in claim 18, comprising a deformable  
2    support member extending through the tripod support system intermediate the first leg,  
3    the second leg, and the third leg.

1           26.    The welding implement as recited in claim 25, wherein the deformable  
2    support member comprises a plurality of wires braided together.

1           27.    The welding implement as recited in claim 26, wherein the plurality of  
2   wires comprises a first coiled portion disposed over the first leg, a second coiled portion  
3   disposed over the second leg, and a third coiled portion disposed over the third leg.

1           28.    A method of manufacturing a flexible welding implement, comprising:  
2   securing a coiled wire spring to an end of a first tube;  
3   securing a second tube to a torch head;  
4   securing the coiled wire spring to an end of the second tube; and  
5   disposing a flexible tube over the coiled wire spring to enable a fluid to flow  
6   through the first tube, the flexible tube, and the second tube to the torch head.

1           29.    The method as recited in claim 28, wherein securing a coiled wire spring to  
2   an end of a first tube comprises brazing the coiled wire spring to the end of the first tube.

1           30.    The method as recited in claim 28, wherein disposing a flexible tube over  
2   the coiled wire comprises applying heat to the flexible tube to shrink the flexible tube onto  
3   the coiled wire spring.

1           31.    The method as recited in claim 28, molding an insulating material over the  
2   flexible tube.

1           32.    The method as recited in claim 28, comprising disposing the first tube  
2   through a tube support member operable to support a plurality of tubes.

1           33.    The method as recited in claim 28, molding an insulating material over the  
2   flexible tube.

1           34.     The method as recited in claim 28, comprising disposed a coiled end portion  
2     of a support member over the first tube and securing an opposite end of the support member  
3     to the torch head.